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HYDROLOGICAL MEMORANDUM 13

RAINFALL OVER THE AREAS OF THE GWYNEDD, DEE AND CLWYD RIVER BOARDS 1916—50

by

Miss H. Rowsell

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HYDROLOGICAL MEMORANDA NO. 13

Rainfall over the areas of the Gwynedd, Dee and Clwyd River Boards 1916-50

1. Rainfall, 1916-50;

1.1 Introduction. The estimation of standard-period averages for the months or for the year, is carried out in three stages; the selection of sound, homogeneous records complete for the 35 years, 1916-1950, which provide arithmetic means of monthly and annual rainfall, the basic values for all other work; the estimation of standard-period, annual averages for short-period stations; the estimation of standard-period, monthly averages for stations in the second group, where these are needed for special purposes.

A detailed account of the methods developed and used in the Meteorological Office (M.O.3) to estimate standard-period averages from short-period records, is given in Hydrological Memoranda No. 5.

It is possible to process the data in a number of ways but the maps and tables are presented here in the simplest, most precise forms in order to be of use to a wide range of enquirers.

1.2 The Primary Survey, for Great Britain and Northern Ireland, of stations with complete records during 1916-1950, included some cases where the site had been changed to one with a better exposure and observations from both sides had been recorded for a few years. Attempts were made to amend the earlier readings by comparison of the data during a period of overlap, in order to have a set of values from 1916, to the date of the change, which would be representative of the later, and better, record. But since the earlier exposures ere usually unsatisfactory (being over-exposed or over-sheltered), the results were mostly erratic and the amended sets of values were not homogeneous. In a few cases, small breaks in a long record were completed by using estimated values, based on a nearby station, with or without the us of a modifying factor.

Of the many records examined, monthly and annual averages were accepted for 30 stations, 15 for each area. Unfortunately nine, seven of which were in the Gwynedd area have now ceased. The accepted values (in inches), together with the proportions (per cent) of each monthly average to the annual average, are given in Table 1 together with the altitude and the National Grid reference for each station. Most of these averages were included in H.M.S.O. publication, M.O.635, "Averages of Rainfall for Great Britain and Northern Ireland, 1916-1950" some were omitted because other stations were so near.

The percentage proportion of monthly averages to the annual averages for the long-period stations were used to draw a series of twelve monthly maps from which it is possible to estimate the percentage of average annual rainfall, for any place, for each month of the year. These maps are shown as Figure 1. Values estimated for a few points between the isopercental lines have been added to give a clearer indication of the variations from place to place. The points chosen are not necessarily the same for each map.

/1.3.

1.3 The Secondary Survey of short-period stations was undertaken next, using records up to the time of the survey, usually into the late 1950's. Long-period stations, whose averages had been rejected from the Primary Survey because the record was not homogeneous, were examined again and averages were estimated for the later (and usually improved) part of the series of observations. Averages based on data for less than 5 years were not usually accepted for publication. A list of the accepted averages, for the short-period stations, is given in Table II together with the altitude and National Grid reference for each. The stations are listed in an order based on natural drainage areas which will be used for the first time in British Rainfall, 1961.

These averages, together with the long-period averages listed in Table I, were plotted on Ordnance Survey Maps (scale 4 miles to the inch), and used to draw the lines of average annual rainfall, 1961-1950. The map is shown as Figure 2, reduced to a scale of about 10 miles to the inch. The Secondary Survey is frequently revised for special areas using the most up-to-date observations for relatively new stations and the map is subject to revision from time to time. The redrawing of the ischyets usually in greater detail and perhaps a clearer definition of a wet area as more and more observations become available from improved River Board networks of rain-gauges. Drastic changes are not expected. In Tables I, II and III with a few exceptions, the averages quoted are for records still being maintained in 1963.

1.4 Monthly Averages for a further group of stations were next estimated for use in the Monthly Weather Report and for enquiries. For this purpose some stations were chosen from those listed in Table II to supplement those listed in Table I. To find the monthly averages, the monthly proportions (per cent of annual average) were chosen from the equipercentral maps (see Fig. 1) so that the total for the twelve months was 100. These monthly percentages were then used to apportion the annual average (in inches) amongst the months. The results are given in Table III.

1.5 Daily Rainfall, 1916-1950. Three of the initial 30 records which were accepted for the Primary Survey (1.2) were analysed further. These records had regular daily entries, for the 24-hour period 0900 to 0900, for each of the 35 years, 1916-1950. Tables IVa gives for each of the stations the 35-year totals for each day of the year (in inches). Table IVb gives
1/35 of all possible totals for .17 in. to 24.67 in., thus providing a reduction tables for the values in IVa to give average daily falls from "trace" to .70 in. For 29 February the reduction factor is, of course, 1/9.

The daily averages can be re-grouped as 5-day means, 7-day means, consecutive or sliding means or in whatever form suits a specific requirement.

2. Frequencies of Daily Rainfall, 1916-1950. The same set of daily values used for Table IVa were re-grouped to give frequency tables with intervals of .01 inch. These have been re-arranged in Table V, to give accumulated frequencies with intervals of .10 in. up to 2.50 in. and a wider grouping above this.

3. Extremes of Rainfall. The records for the 35-year period, 1916-1950, for the stations used in Tables IV and V were also used to find maximum and minimum values for the year for each month and also maximum daily values for each month. These maxima and minima are given in Table VI and Table VII.

/Additional

Additional extremes are given in these tables to cover the 50-year period, 1911-1960.

Appendix I.

Intense Falls. Falls of 2 hours or less, which have been recorded in British Rainfall and rank as "noteworthy" or "very rare", are listed in Appendix I.

H. ROWSELL

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Table I. Monthly and Annual Averages of Rainfall, 1916-1950, (in inches)
Gwynedd, Dee and Clwydd River Board Areas

County	Station	Alt. ft.	N.G.R.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	
							Gwynedd River Board										
Merionethshire	Aberdovey	170	SN(22)621963	4.33 9.7	3.29 7.4	2.68 6.0	2.46 5.5	2.93 6.6	3.06 6.9	3.86 8.6	4.21 9.4	4.16 9.3	5.06 11.3	4.42 9.9	4.18 9.4	44.64 100.0	Inch %
"	Llechwedd Quarry	700	SH(23)697468	12.14 11.0	9.13 8.3	6.43 5.8	6.22 5.6	6.00 5.5	7.32 6.7	8.80 8.0	10.07 9.2	9.80 8.9	11.94 10.9	11.20 10.2	10.94 9.9	109.99 100.0	Inch %
Caernarvonshire	Snowdon, Grib Goch	2340	SH(23)623550	19.44 11.3	13.31 7.7	10.41 6.1	9.64 5.6	8.72 5.1	11.18 6.5	14.19 8.3	16.01 9.3	15.42 9.0	18.68 10.9	17.18 10.0	17.53 10.2	171.71 100.0	Inch %
"	Snowdon, Llydaw Intake	1480	SH(23)636547	16.96 11.3	12.05 8.0	9.25 6.1	8.80 5.8	7.80 5.2	9.51 6.3	11.89 7.9	13.41 8.9	13.46 8.9	16.41 10.9	15.35 10.2	15.86 10.5	150.75 100.0	Inch %
Anglesey	Bodorgen	30	SH(23)389674	4.07 10.5	2.68 6.9	2.41 6.2	2.07 5.4	2.47 6.4	2.50 6.5	2.85 7.4	3.37 8.7	3.57 9.2	4.47 11.6	4.17 10.8	4.02 10.4	38.65 100.0	Inch %
"	Amlwch	178	SH(23)438913	4.15 10.9	2.56 6.7	2.32 6.1	2.00 5.2	2.51 6.6	2.28 6.0	2.84 7.4	3.10 8.1	3.65 9.6	4.41 11.5	4.17 10.9	4.19 11.0	38.18 100.0	Inch %
"	Llwydiarth Esgob	200	SH(23)436843	4.27 10.6	2.81 7.0	2.50 6.2	2.24 5.6	2.70 6.7	2.40 5.9	2.91 7.2	3.46 8.6	3.81 9.4	4.57 11.3	4.36 10.8	4.30 10.7	40.33 100.0	Inch %
Caernavonshire	Llanddwno	13	SH(23)777818	2.94 10.2	2.17 7.5	1.86 6.4	1.69 5.9	2.07 7.2	1.79 6.2	2.07 7.2	2.54 8.8	2.72 9.4	3.23 11.2	2.85 9.9	2.91 10.1	28.84 100.0	Inch %
Merionethshire	Towyn	14		4.41 9.7	3.18 7.0	2.71 6.0	2.51 5.6	3.02 6.7	3.07 6.8	3.84 8.5	4.30 9.5	4.30 9.5	4.91 10.9	4.58 10.1	4.41 9.7	45.24 100.0	Inch %
"	Dolgelly, Borthwnog	5	SH(23)686190	4.98 10.2	4.57 7.8	3.62 6.1	3.66 6.2	3.51 6.0	3.99 6.8	4.90 8.3	5.39 9.1	5.34 9.1	6.14 10.4	5.93 10.1	5.85 9.9	58.88 100.0	Inch %

County	Station	Alt. ft.	N.G.R.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	
Merionethshire ✓	Dolgelly, Brynterion.	50		6.51 10.1	4.96 7.7	3.93 6.1	3.97 6.2	3.82 6.0	4.35 6.8	5.37 8.4	5.89 9.2	5.82 9.1	6.72 10.5	6.45 10.0	6.36 9.9	64.15 100.0	Inch %
" ✓	Pennal Talgarth Hall.	125	SN(22)694998	6.21 10.1	4.83 7.8	3.67 6.0	3.64 5.9	3.71 6.0	4.02 6.5	5.23 8.5	5.72 9.3	5.75 9.3	6.63 10.8	6.18 10.0	6.02 9.8	61.61 100.0	Inch %
Caernarvonshire	Madryn Castle, Farm School.	278	SH(23)286362	4.75 11.0	2.88 6.7	2.72 6.3	2.21 5.1	2.73 6.4	2.59 6.0	3.36 7.8	3.87 9.0	3.82 8.9	4.83 11.2	4.72 11.0	4.57 10.6	43.05 100.0	Inch %
" ✓	Glynllifion Park.	100	SH(23)455551	5.16 11.4	3.26 7.2	2.93 6.4	2.38 5.2	2.80 6.2	2.85 6.3	3.34 7.4	3.86 8.5	3.85 8.5	4.98 11.0	4.90 10.8	5.05 11.1	45.36 100.0	Inch %
Anglesey ✓	Llangwyllog, Trescawen.	239		4.66 10.9	2.99 7.0	2.64 6.1	2.35 5.5	2.81 6.5	2.64 6.1	3.09 7.2	3.71 8.6	4.03 9.4	4.84 11.3	4.69 10.9	4.53 10.5	42.98 100.0	Inch %
				Dee and Clwydd River Board													
Denbigh	Denbigh Hospital	316	SJ(33)051653	3.48 10.5	2.51 7.5	2.15 6.5	2.10 6.3	2.39 7.2	2.06 6.2	2.50 7.5	2.66 8.0	2.96 8.9	3.96 11.1	3.38 10.2	3.36 10.1	33.24 100.0	Inch %
Flintshire	Nanthys	178	SJ(33)081711	2.69 9.1	2.06 6.9	1.87 6.3	1.86 6.3	2.26 7.6	1.95 6.6	2.63 8.8	2.73 9.2	2.77 9.3	3.21 10.8	2.96 10.0	2.71 9.1	29.70 100.0	Inch %
Denbigh	Dolwen Reservioir South.	580	SH(23)972702	3.46 9.9	2.56 7.4	2.15 6.2	2.22 6.4	2.40 6.9	2.22 6.4	2.68 7.7	2.88 8.3	3.26 9.4	3.91 11.2	3.62 10.4	3.43 9.8	34.79 100.0	Inch %
Flintshire	Rhyl	31	SJ(33)002807	2.52 9.5	1.84 6.9	1.67 6.3	1.58 5.9	2.14 8.0	1.67 6.3	2.09 7.8	2.47 9.3	2.63 9.9	2.98 11.2	2.56 9.6	2.48 9.3	26.63 100.0	Inch %

County	Station	Alt. ft.	N.G.R.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	
Merionethshire	Llanuwchllyn Plas-deon	555	SH(23)875302	8.03 12.0	5.70 8.5	4.17 6.2	4.05 6.0	4.03 6.0	3.74 5.6	4.65 6.9	5.40 8.0	5.39 8.0	7.65 11.4	7.19 10.7	7.21 10.7	67.21 100.0	Inch %
Denbighshire	Nant Heilyn	1225	SH(23)925554	6.05 11.3	4.35 8.1	3.36 6.3	3.30 6.2	3.30 6.2	3.25 6.1	3.84 7.2	4.37 8.5	4.63 8.6	5.92 11.0	5.48 10.2	5.53 10.3	53.58 100.0	Inch %
"	Llyn Bran	1428	SH(23)960593	6.28 11.2	4.62 8.2	3.56 6.3	3.45 6.1	3.52 6.3	3.41 6.1	4.04 7.2	4.65 8.3	4.90 8.7	6.25 11.1	5.70 10.1	5.82 10.4	56.20 100.0	Inch %
"	Pant-y-maen	1320	SH(23)977587	6.07 11.0	4.61 8.4	3.57 6.5	3.52 6.4	3.41 6.2	3.16 5.8	3.87 7.0	4.56 8.3	4.74 8.6	6.18 11.2	5.62 10.2	5.69 10.4	55.00 100.0	Inch %
"	Ty-Mawr Reservoir.	805	SJ(33)274480	3.78 9.8	2.96 7.7	2.53 6.6	2.87 7.4	2.77 7.2	2.22 5.8	3.01 7.8	3.22 8.4	3.04 7.9	4.15 10.8	4.17 10.8	3.76 9.8	38.48 100.0	Inch %
"	Pack Saddle Reservoir.	370	SJ(33)305479	3.56 10.2	2.69 7.7	2.29 6.6	2.50 7.2	2.61 7.5	2.09 6.0	2.76 7.9	2.94 8.4	2.63 7.5	3.67 10.5	3.74 10.7	3.43 9.8	34.91 100.0	Inch %
Flintshire	Gredington	300	SJ(33)447386	2.75 9.0	2.18 7.2	1.94 6.4	2.03 6.7	2.61 8.6	1.85 6.1	2.85 9.4	2.95 9.7	2.44 8.0	3.14 10.3	2.92 9.6	2.73 9.0	30.39 100.0	Inch %
Cheshire	Chester, Waterworks.	85	SJ(33)421665	2.46 9.0	1.78 6.5	1.61 5.9	1.72 6.3	2.16 7.9	1.84 6.8	2.66 9.8	2.80 10.3	2.42 8.9	2.78 10.2	2.63 9.6	2.41 8.8	27.27 100.0	Inch %
Flintshire	Soughton Hall	418	SJ(33)246671	3.29 9.6	2.53 7.4	2.24 6.5	2.22 6.4	2.47 7.2	2.21 6.4	2.99 8.7	3.12 9.1	2.89 8.4	3.64 10.6	3.46 10.1	3.32 9.6	34.38 100.0	Inch %

County	Station	Alt. ft.	N.G.R.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	
Flintshire ✓	Overton, Fairleigh	220	SJ(33)375417	2.82 9.6	2.10 7.1	1.92 6.5	1.96 6.7	2.38 8.1	1.82 6.2	2.72 9.2	2.80 9.5	2.32 7.9	2.98 10.1	2.93 9.9	2.71 9.2	29.46 100.0	Inch %
Denbighshire ✓	Ruabon, Trevor	500	SJ(33)256424	3.90 10.8	2.88 7.9	2.45 6.8	2.61 7.2	2.74 7.6	2.02 5.6	2.71 7.5	2.92 8.0	2.76 7.6	3.73 10.3	3.92 10.8	3.58 9.9	36.22 100.0	Inch %

TABLE II Estimated Annual Averages of Rainfall, 1916-50, (in inches) for short period Stations, Gwynedd, Dee and Clwydd River Board Areas

County	Station	Annual Average in	Alt. ft.	N.G.R.
	Gwynedd River Board			
Montgomeryshire	Aberangell	72.91	170	SH(23)847101
"	Ceinws Camp	77.12	246	SH(23)759060
Cardiganshire	Glandyfi	50.56	40	SN(22)690963
Merionethshire	Llwyncelyn	59.49	30	SN(22)676986
"	Arthog	48.97	6	SH(23)632148
"	Dolgelly, Bronygader	73.28	250	SH(23)718173
"	Harlech, Hendre	63.26	825	SH(23)599317
"	Llyn, Morwynion	100.09	1320	SH(23)735422
"	Manod Ffestiniog	98.79	713	SH(23)701422
"	Oakeley Quarry	115.69	1100	SH(23)693469
"	Port Newydd	76.28	610	SH(23)713408
"	Darn Gae	78.78	950	SH(23)762368
"	Tyn-y-Twll	83.55	750	SH(23)686353
"	Tyddyn-y-Ganey	71.29	660	SH(23)700383
"	Trawsfynydd	71.18	650	SH(23)677377
Caernarvonshire	Delta	170.05	1435	SH(23)624544
"	Lliwedd	153.49	1485	SH(23)625538
"	Llydaw Mine	157.92	1480	SH(23)631548
"	Teryn	155.97	1080	SH(23)644544
"	Cwn Dyli	140.46	310	SH(23)654542
"	Beddgelert	90.19	133	SH(23)588482
"	West End	42.52	9	SH(23)367342
"	Cefnamwlch	44.16	230	SH(23)234354
"	Nantle	63.39	400	SH(23)497532
"	Glynllifon	47.39	100	SH(23)455555
Anglesey	Trefarthen	36.25	30	SH(23)482659
"	Gadlys Cottage	43.83	340	SH(23)548758
"	Treffes	43.74	290	SH(23)547753
"	Glauaber	40.37	70	SH(23)457752
"	Newborough Forest	38.84	20	SH(23)414669
"	Valley	33.67	32	SH(23)310758
"	Gemaas Bay Waterworks	36.15	30	SH(23)377923
"	Parciau	44.91	270	SH(23)494842
"	Plas Cadnaut	43.47	120	SH(23)557731
Caernarvonshire	Bangor Town Hall	42.30	30	SH(23)580721
"	Penrhyn Quarries	64.57	527	SH(23)021653
"	Aber	41.62	60	SH(23)650728
"	Llanfairfechan, School House	39.87	170	SH(23)684745
"	Penmaenmawr, Treforris Road	36.55	170	SH(23)732770
"	Conway Mussel Tanks	30.49	50	SH(23)785772
Denbighshire	Voelas Hall	56.07	640	SH(23)851515
Caernarvonshire	Ffynnon Llogwy	100.84	1760	SH(23)694622
"	Llyn Cowlyd	90.93	1340	SH(23)715608
"	Ffrith Fawr	94.46	1750	SH(23)722626
"	Ffrith Garreg Wen	89.36	1140	SH(23)739634
"	Cowlyd	90.40	1200	SH(23)737637
"	Llyn Eigiau	80.27	1244	SH(23)724647
"	Melynllyn	118.99	2065	SH(23)703657
"	Llyndulyn	105.29	1632	SH(23)706663
"	Afon Tafalog	64.73	1130	SH(23)733711
"	Llanbedr-y-Cennin	55.30	590	SH(23)754698

County	Station	Annual Average ins	Alt. ft.	N.G.R.
	Gwynedd River Board			
Denbighshire	Bodnant	38.44	170	SH(23)800725
"	Colwyn Bay	29.37	118	SH(23)857786
Dee and Clwyd River Board				
Denbigshire	Clawdd-newydd	39.88	983	SJ(33)078521
"	Ruthin, Corwen Road	32.83	234	SJ(33)125556
"	Bwlch Tunnel	33.75	908	SJ(33)164580
"	Foel Fach	39.19	1000	SJ(33)067524
"	Llangwyfan	31.04	460	SJ(33)122661
Denbighshire	Llyn Aled Reservoir	50.44	1220	SH(23)915579
"	Moel-y-Brynian	50-21	1230	SH(23)913591
"	Llannefydd	34.73	580	SH(23)974706
"	Plas Uchaf Reservoir	32.62	485	SH(23)968712
"	Groes Hall	35.34	650	SH(33)009648
Flintshire	Dyserth	29.17	260	SJ(33)058783
Denbighshire	Glascoed Filters	32.27	360	SH(23)996736
Flintshire	Prestatyn	28.59	12	SJ(33)065831
"	Mostyn	31.93	4	SJ(33)159808
"	Malkyn	35.99	870	SJ(33)205707
Merionethshire	Blaen Lliw Isaf	92.63	1279	SH(23)804328
"	Cwm Prysor	85.16	1300	SH(23)792383
"	Afon Mynach	71.53	1198	SH(23)898436
"	Bala, Grammar School	51.94	537	SH(23)929361
"	Maesafallen	64.66	957	SH(23)948308
"	Crogen No. 1	46.93	550	SJ(33)008367
Denbighshire	Alwen Dam	52.82	1189	SH(23)955528
"	Hafod-y-Llan Isaf	50.17	1180	SH(23)957529
"	Alwen	49.77	1100	SH(23)957529
"	Hafod-yr-onen	49.50	1175	SH(23)969556
"	Llanfihangel-glyh-myfyr	43.63	898	SH(23)986491
Merionethshire	Minffordd	40.58	971	SJ(33)030483
Denbighshire	Vivod	38.27	640	SJ(33)191424
"	World's End	44.15	1573	SJ(33)242481
"	Ruabon Mountain	43.58	1634	SJ(33)237457
"	Bryn Adda Flat	42.00	1214	SJ(33)250453
"	Penycae	40.62	678	SJ(33)269454
"	Chirk	35.89	350	SJ(33)293376
"	Abersychnant	43.27	1370	SJ(33)232498
"	Minera	40.29	1400	SJ(33)262508
"	Gwter Siani	44.37	1503	SJ(33)248494
"	Erwan	44.75	1160	SJ(33)262488
"	Cae Llwyd Reservoir	40.24	918	SJ(33)269482
"	Wrexham	30.49	275	SJ(33)339507
"	Pendinas Reservoir	42.10	1249	SJ(33)232518
"	Coed Clwyd Forest	37.33	890	SJ(33)175612
Flintshire	Cilcain Reservoir No. 4	36.41	940	SJ(33)154640
"	Cilcain Reservoir No. 2	36.10	785	SJ(33)163645
"	Cilcen Hall	33.68	675	SJ(33)185683
Denbighshire	Llyn Cyfnwy	41.89	1131	SJ(33)223545
"	Bwlchgwyn	43.28	1267	SJ(33)236520
Cheshire	Eaton Hall	29.11	60	SJ(33)415609
"	Chester, Dickson'S Drive	30.82	64	SJ(33)409677
"	Chester Sewage Works	27.44	16	SJ(33)393667
Flintshire	Hawarden Bridge	27.47	17	SJ(33)322693
"	Mold	32.83	503	SJ(33)256663
"	Pengwladys	30.18	231	SJ(33)287683
Cheshire	West Kirby Park	30.51	17	SJ(33)216865

TABLE III Monthly Averages of Rainfall, 1916-50, estimated for short period station (in inches)
Gwynedd, Dee and Clwydd River Board Areas

County	Station	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year
Merionethshire	Oakeley Quarry	12.73	9.60	6.71	6.48	6.36	7.75	9.26	10.64	10.30	12.61	11.80	11.45	115.69
Anglesey	Valley	3.60	2.29	2.09	1.89	2.26	1.99	2.52	2.90	3.16	3.84	3.60	3.53	33.67
Caernarvonshire	Aber	4.37	3.12	2.54	2.33	2.62	2.67	3.08	3.62	3.91	4.70	4.37	4.29	41.62
Denbighshire	Colwyn Bay	2.97	2.17	1.85	1.73	2.09	1.88	2.17	2.58	2.79	3.29	2.91	2.94	29.37
Flintshire	Prestatyn	2.72	1.97	1.77	1.69	2.23	1.91	2.34	2.72	2.72	3.09	2.77	2.68	28.59
"	Hawarden Bridge	2.53	1.98	1.70	1.76	2.12	1.81	2.47	2.66	2.34	2.88	2.75	2.47	23.47

Tables IVa. 35-year Totals of Daily Rainfall, 1916-1950, in inches

Blanenau Ffestiniog, Lechwedd Quarry

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17.14	16.00	5.95	8.99	3.86	8.66	10.38	12.01	15.29	12.16	15.32	21.19
2	18.66	15.25	7.15	8.00	2.25	10.74	5.73	10.07	10.24	10.70	19.87	15.47
3	18.04	13.02	8.53	6.86	3.18	11.47	14.70	6.98	11.87	15.60	14.02	11.46
4	11.54	11.01	7.53	7.57	8.81	10.26	12.47	9.64	9.90	14.92	10.50	11.66
5	21.14	15.74	8.29	6.12	12.08	5.94	6.19	13.65	9.51	19.68	14.11	14.34
6	19.82	12.47	7.83	7.06	7.51	9.23	7.50	8.12	7.78	15.35	10.79	11.98
7	18.30	16.09	7.98	5.11	3.23	6.70	3.43	10.45	10.06	11.39	12.12	13.15
8	12.37	15.07	5.84	7.51	6.79	6.17	7.27	12.58	7.87	13.28	10.63	12.32
9	12.53	19.05	4.14	8.44	5.47	16.12	10.26	11.61	5.84	21.47	12.45	9.50
10	14.07	13.97	6.88	5.44	8.12	8.64	11.61	11.78	9.10	15.02	12.14	9.76
11	11.78	10.59	3.92	8.69	7.61	6.01	9.06	8.90	7.83	9.83	18.56	8.48
12	15.81	12.41	6.79	5.23	11.84	6.67	10.35	8.10	12.76	14.10	16.08	7.07
13	10.50	5.05	5.51	13.18	6.60	2.65	11.11	11.83	12.49	16.18	16.55	14.29
14	12.42	9.97	3.74	9.54	5.44	6.98	7.81	7.78	13.18	9.68	14.62	15.11
15	12.04	14.87	6.71	8.27	10.33	5.49	8.54	14.26	14.20	14.11	7.73	7.68
16	15.38	6.50	7.50	9.70	6.98	5.64	5.90	16.75	20.81	9.14	10.08	10.92
17	13.55	7.05	7.77	9.30	8.13	7.78	9.04	16.38	11.55	15.65	11.49	8.43
18	14.31	9.04	10.45	5.23	5.68	14.18	11.48	11.53	15.04	7.71	9.87	8.63
19	8.10	12.32	10.04	6.64	8.27	9.07	8.89	8.53	8.53	11.60	10.17	9.49
20	11.80	8.31	5.64	5.03	5.32	9.75	6.49	10.93	9.96	11.84	9.95	7.34
21	14.47	6.56	8.50	4.90	4.09	9.77	10.69	9.14	17.24	15.00	17.57	10.68
22	14.53	12.81	7.01	6.86	7.63	5.71	17.32	14.36	16.55	11.57	16.81	13.54
23	11.50	7.68	7.60	10.27	7.02	5.45	10.11	9.51	13.13	18.74	13.24	12.39
24	14.57	8.30	9.00	7.68	5.99	5.20	8.37	11.09	14.66	14.16	9.70	14.48
25	10.66	6.71	6.40	7.82	7.43	5.84	7.67	9.49	11.36	14.06	14.36	9.47
26	9.19	11.79	6.86	6.34	9.76	10.34	12.90	12.41	7.81	14.45	10.42	14.90
27	11.87	11.19	7.31	4.17	8.19	9.36	11.17	17.54	10.03	12.96	14.05	10.23
28	12.56	8.37	7.88	4.48	3.55	15.90	14.27	17.04	5.68	10.42	12.98	21.64
29	12.48	1.89	9.87	6.42	5.55	11.63	14.65	10.98	5.71	14.62	12.51	19.52
30	8.35	-	6.10	6.77	5.14	9.00	12.84	7.70	9.74	11.16	13.32	13.46
31	15.34	-	11.01	-	8.05	-	10.11	11.46	-	11.22	-	14.29

Table IVa. 35-year Totals of Daily Rainfall, 1916-1950, in inches

Llandudno

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.04	3.15	1.19	2.70	1.74	3.20	2.20	2.89	4.15	2.14	3.94	3.61
2	3.20	2.31	2.17	2.56	1.45	2.44	1.52	3.65	2.90	3.42	3.77	2.82
3	4.70	3.84	1.49	1.96	1.54	2.33	2.87	1.39	4.52	3.52	2.76	2.57
4	5.04	2.86	2.37	2.65	2.13	1.14	2.21	1.50	2.54	2.59	2.61	5.40
5	4.33	3.50	2.66	2.81	4.55	2.67	2.40	4.17	2.07	3.40	3.28	2.23
6	3.53	3.11	1.80	1.64	1.96	1.43	2.84	1.41	2.32	3.52	3.37	3.98
7	3.19	4.67	1.43	2.01	1.84	2.06	1.30	4.09	3.77	3.01	5.43	3.63
8	2.31	3.44	3.17	1.25	.89	1.68	1.74	3.49	2.10	3.69	2.70	4.42
9	4.86	4.03	1.42	2.84	1.93	3.07	1.87	2.89	1.74	6.47	4.16	2.99
10	4.13	3.14	1.61	1.84	1.46	1.36	1.52	2.06	1.48	4.76	3.07	3.82
11	4.32	2.06	2.48	1.69	1.99	1.66	1.91	2.96	2.51	2.48	4.76	2.71
12	4.17	2.63	1.65	1.53	2.49	3.63	2.19	2.23	4.48	4.48	3.75	2.22
13	2.51	.97	1.58	3.52	1.37	1.53	3.05	2.57	3.15	4.20	4.06	2.99
14	4.33	1.23	1.71	1.87	1.09	2.89	2.40	1.61	3.38	2.19	3.74	3.87
15	2.67	2.28	1.52	1.83	4.94	1.70	2.50	3.08	3.01	3.37	2.67	3.62
16	3.14	1.59	1.44	1.81	2.24	1.55	2.02	2.72	4.26	2.28	4.57	2.59
17	3.20	2.01	1.95	1.72	4.31	2.69	2.36	3.39	2.87	3.94	2.22	1.78
18	3.50	2.30	2.79	1.00	2.25	2.87	3.01	5.20	3.16	2.16	3.67	2.33
19	2.74	3.04	2.44	1.83	2.23	.99	1.79	2.28	6.31	3.99	3.33	1.72
20	2.72	2.78	2.88	1.41	2.45	2.37	2.33	2.92	3.21	2.67	2.32	2.47
21	2.97	2.65	2.29	1.15	1.93	1.61	2.34	2.38	4.07	3.94	4.20	2.37
22	3.20	2.97	1.95	1.16	3.69	1.58	4.26	3.67	4.55	3.57	3.32	3.91
23	1.56	1.19	2.67	2.23	2.99	2.52	2.11	2.82	3.63	6.42	2.31	2.93
24	2.16	3.06	2.24	1.46	2.07	.81	1.29	3.78	4.76	4.49	2.74	3.90
25	2.70	2.22	2.20	4.14	2.35	2.07	3.20	1.80	3.71	5.81	3.59	2.93
26	3.03	2.53	2.05	1.45	2.80	1.67	2.22	2.55	2.09	4.91	2.80	2.44
27	2.80	3.32	1.66	1.41	3.54	2.39	2.54	3.89	2.05	2.40	2.78	2.39
28	3.11	2.07	2.14	1.78	2.30	2.08	4.42	4.44	2.31	2.52	3.20	3.63
29	3.09	.77	1.56	1.47	2.10	1.71	3.23	2.49	1.46	3.45	2.19	6.87
30	2.56	-	2.73	2.35	1.14	3.04	.83	1.76	2.65	3.72	2.65	4.87
31	4.15	-	3.88	-	2.89	-	2.00	2.79	-	3.39	-	3.67

G.02823/SG/6/63/75

Table IVa. 35-year Totals of Daily Rainfall, 1916-1950, in inches

Llwydiarth Esgob, Anglesey

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.55	5.23	2.40	5.00	2.86	4.00	3.50	5.71	7.08	4.00	6.35	6.56
2	4.35	3.18	2.20	3.02	1.98	3.68	1.53	2.65	4.24	4.29	6.94	4.51
3	6.22	4.68	2.86	2.70	1.71	3.10	4.72	1.27	6.86	5.30	4.22	3.47
4	4.62	3.17	3.92	3.43	4.01	2.83	4.50	3.96	3.67	4.39	5.47	6.33
5	4.97	4.52	2.66	2.90	5.47	3.55	2.78	5.47	2.69	5.81	5.61	4.64
6	5.39	3.52	2.84	2.02	3.07	3.24	2.82	2.27	3.97	5.27	4.32	4.99
7	4.85	5.98	1.42	3.06	2.21	2.37	2.03	4.49	3.58	4.46	7.17	5.24
8	4.47	4.55	3.00	1.66	1.57	1.61	2.57	5.02	3.45	6.65	4.36	4.90
9	5.21	4.64	2.45	2.41	2.87	3.62	2.77	3.71	2.66	6.02	5.24	4.90
10	6.35	3.53	2.41	2.63	1.98	1.48	3.03	2.42	2.29	5.59	5.01	4.60
11	4.84	2.09	2.77	2.88	2.53	1.96	2.63	3.12	2.90	3.92	6.08	3.34
12	8.51	2.72	2.83	2.65	5.41	5.17	3.09	3.79	7.09	4.80	6.54	3.51
13	4.57	2.03	1.96	4.21	2.12	2.24	3.63	2.45	4.92	6.69	4.62	6.16
14	4.52	2.93	1.74	3.72	2.64	3.65	3.38	4.96	3.76	3.01	6.23	4.53
15	4.18	3.65	3.01	2.46	3.86	2.13	4.17	4.14	5.69	3.62	4.56	5.71
16	4.59	2.47	2.73	2.48	2.67	2.49	2.02	4.86	6.58	3.93	5.07	3.55
17	4.66	1.89	3.24	1.75	5.93	3.42	3.12	5.01	3.91	4.55	3.84	3.74
18	5.22	3.59	4.29	1.49	1.79	2.86	3.28	5.76	4.14	3.21	6.34	4.08
19	3.85	4.34	3.83	1.81	2.73	2.16	2.70	3.92	7.19	5.07	5.84	3.00
20	4.73	3.90	4.00	2.96	2.48	3.08	4.42	3.47	3.93	4.23	3.75	4.29
21	4.93	2.00	2.79	1.58	2.05	2.47	3.66	2.71	5.52	4.96	7.15	4.33
22	4.51	3.54	2.24	1.69	5.37	2.38	4.91	3.11	5.69	6.27	4.27	5.24
23	3.21	1.34	3.05	3.47	2.69	3.50	3.27	3.45	4.81	10.43	4.15	4.28
24	5.60	3.23	3.76	2.42	3.03	1.18	2.18	2.90	4.92	5.56	3.19	7.85
25	3.88	3.51	2.73	3.53	2.33	2.01	4.06	2.20	5.14	8.38	5.02	3.16
26	3.61	4.26	2.24	1.37	4.20	1.57	2.94	2.71	2.62	3.90	3.85	4.56
27	4.45	4.21	2.36	1.61	2.81	3.18	2.71	8.55	2.74	4.93	6.05	3.93
28	4.76	2.36	2.91	1.28	2.06	2.80	5.35	6.62	3.80	2.61	3.72	7.28
29	4.82	1.30	2.12	2.54	2.96	2.87	4.39	3.05	2.90	6.56	3.65	7.21
30	4.13	-	2.60	3.45	1.91	3.39	4.03	2.43	4.75	5.68	5.02	4.89
31	4.88	-	4.27	-	5.27	-	1.67	4.85	-	6.38	-	5.40

Table IVb Rainfall totals in inches, divided by 35, thus giving 35-year means ranging from 'trace' to .70 inc., for use with table IVa.

Totals in inches x	35 yr means $x/35$		Totals in inches x	35 yr means $x/35$
- .17	'trace'		12.43 - 12.77	.36
.18 - .52	.01		12.78 - 13.12	.37
.53 - .87	.02		13.13 - 13.47	.38
.88 - 1.22	.03		13.48 - 13.82	.39
1.23 - 1.57	.04		13.83 - 14.17	.40
1.58 - 1.92	.05		14.18 - 14.52	.41
1.93 - 2.27	.06		14.53 - 14.87	.42
2.28 - 2.62	.07		14.88 - 15.22	.43
2.63 - 2.97	.08		15.23 - 15.57	.44
2.98 - 3.32	.09		15.58 - 15.92	.45
3.33 - 3.67	.10		15.93 - 16.27	.46
3.68 - 4.02	.11		16.28 - 16.62	.47
4.03 - 4.37	.12		16.63 - 16.97	.48
4.38 - 4.72	.13		16.98 - 17.32	.49
4.73 - 5.07	.14		17.33 - 17.67	.50
5.08 - 5.42	.15		17.68 - 18.02	.51
5.43 - 5.77	.16		18.03 - 18.37	.52
5.78 - 6.12	.17		18.38 - 18.72	.53
6.13 - 6.47	.18		18.73 - 19.07	.54
6.48 - 6.82	.19		19.08 - 19.42	.55
6.83 - 7.17	.20		19.43 - 19.77	.56
7.18 - 7.52	.21		19.78 - 20.12	.57
7.53 - 7.87	.22		20.13 - 20.47	.58
7.88 - 8.22	.23		20.48 - 20.82	.59
8.23 - 8.57	.24		20.83 - 21.17	.60
8.58 - 8.92	.25		21.18 - 21.52	.61
8.93 - 9.27	.26		21.53 - 21.87	.62
9.28 - 9.62	.27		21.88 - 22.22	.63
9.63 - 9.97	.28		22.23 - 22.57	.64
9.98 - 10.32	.29		22.58 - 22.92	.65
10.33 - 10.67	.30		22.93 - 23.27	.66
10.68 - 11.02	.31		23.28 - 23.62	.67
11.03 - 11.37	.32		23.63 - 23.97	.68
11.38 - 11.72	.33		23.98 - 24.32	.69
11.73 - 12.07	.34		24.33 - 24.67	.70
12.08 - 12.42	.35			

Table V. Accumulated Frequencies of Daily Rainfall Amounts, (in inches), 1916-1950.

Blaenau Festiniog

Daily Totals	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	All Months
7.70						1							1
6.00						1		1					2
5.50						1		1			1		3
5.40						1		1			1		3
5.10						1	1	1		1	2		6
4.80					1	1	1	1		1	2		7
4.70		1			1	1	1	1		1	3		9
4.60		1			1	1	1	2		1	5		12
4.50		1			1	1	1	2	1	1	5		13
4.40	1	1			1	1	1	2	1	1	5		14
4.30	1	1			1	1	1	2	2	1	5	1	16
4.20	1	1			1	2	1	2	3	1	6	1	19
4.10	1	1			1	2	1	2	3	1	6	2	20
4.00	1	1			1	2	1	2	3	1	7	2	21
3.90	1	1			1	2	1	2	3	2	7	3	23
3.80	1	1		1	1	2	1	3	3	2	8	3	26
3.70	2	1		1	1	3	1	3	3	2	8	3	28
3.60	2	3		1	1	3	1	4	3	2	8	3	31
3.50	2	4		1	1	3	1	5	4	4	8	3	36
3.40	2	5		1	1	4	2	6	5	4	8	4	42
3.30	4	6		1	1	5	2	6	8	4	8	4	49
3.20	4	7		1	1	6	2	8	9	7	10	4	59
3.10	5	7	1	1	2	6	2	8	9	9	12	5	67
3.00	7	8	1	1	3	6	2	8	9	10	13	5	73
2.90	8	9	1	1	4	6	2	8	10	13	13	7	82
2.80	8	9	1	1	4	6	4	0	13	14	13	7	89
2.70	10	9	3	1	5	6	4	9	13	16	13	8	97
2.60	12	9	4	1	5	7	5	10	13	20	13	9	108
2.50	12	11	4	2	5	9	5	11	15	21	13	9	117
2.40	14	12	5	2	5	11	7	13	17	22	14	9	129
2.30	16	13	5	3	5	13	8	15	17	24	20	11	150
2.20	16	18	5	3	6	17	12	16	19	30	22	13	177
2.10	18	20	7	4	7	19	13	18	21	33	27	14	201
2.00	22	24	9	6	8	22	18	21	28	36	28	17	239
1.90	25	27	11	7	9	23	19	26	32	40	36	19	273
1.80	31	33	13	10	10	24	22	32	38	45	42	24	321
1.70	36	38	16	13	10	29	27	38	41	51	47	29	375
1.60	52	42	20	14	13	39	34	46	43	58	54	33	447
1.50	62	47	20	16	16	41	36	53	47	68	60	45	511
1.40	68	51	28	21	28	47	45	63	56	77	67	53	594
1.30	78	52	29	25	27	53	53	68	60	90	74	61	670
1.20	95	63	35	33	32	62	69	86	72	105	88	78	818
1.10	110	73	39	42	40	69	76	100	88	120	99	99	955
1.00	134	86	48	52	50	78	90	109	98	130	112	109	1096
0.90	159	106	57	58	61	88	102	127	115	154	135	126	1288
0.80	187	128	68	71	78	101	130	143	135	179	153	146	1449
0.70	210	150	93	88	96	115	148	166	158	207	179	194	1804
0.60	259	180	113	104	111	131	173	189	205	243	209	231	2148
0.50	307	215	146	134	141	149	208	232	230	290	245	286	2583
0.40	360	258	189	189	176	177	262	277	265	335	300	342	3130
0.30	428	311	256	252	220	226	316	340	322	381	375	403	3830
0.20	513	392	326	325	292	295	392	414	412	466	460	491	4778
0.10	632	487	446	434	392	402	509	518	517	574	576	601	6088
0.005	865	674	675	684	621	612	688	729	711	752	769	844	8624
0.004*	220	315	410	366	464	438	397	356	339	333	281	241	4160
Total No. of Days	1085	989	1085	1050	1085	1050	1085	1085	1050	1085	1050	1085	12784

G.02823/CJH/63/75

*Including rainless days

Table V. Accumulated Frequencies of Daily Rainfall

Amounts, (in inches), 1916-1950

Llandudno

Daily Totals	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	All months
↑ 2.50													
2.40													
2.30													
2.20													
2.10													
2.00													
1.90									1				1
1.80									2				2
1.70								1	2	1			4
1.60								1	2	1			4
1.50	1		1					1	2	3			8
1.40	2		2		1	1		1	2	3			11
1.30	2		2	1	1	1	3	1	4	3			18
1.20	3	1	2	1	1	1	4	2	4	3	1	1	24
1.10	3	2	2	2	1	1	4	3	5	3	1	2	29
1.00	6	2	2	2	2	3	4	4	6	4	1	3	39
0.90	6	5	2	2	3	4	5	9	8	5	3	3	55
0.80	9	9	7	3	7	4	9	11	14	14	8	6	101
0.70	15	11	10	7	17	10	10	13	16	18	14	14	155
0.60	22	17	13	10	22	12	17	25	29	31	22	20	240
0.50	34	31	16	11	29	17	26	34	39	47	32	28	344
0.40	59	44	34	20	42	36	43	62	66	78	63	58	605
0.30	74	65	42	28	53	43	52	73	77	89	79	76	751
0.20	144	99	92	66	105	82	84	122	132	161	148	150	1385
0.10	226	169	140	122	153	170	146	183	191	224	217	231	2192
↓ 0.005	678	536	524	534	503	471	553	571	591	642	678	732	7013
↓ *0.004	407	453	561	516	582	579	532	514	459	443	327	353	5771
Total No of days	1085	989	1085	1050	1085	1050	1085	1085	1050	1085	1050	1085	12784

* Including rainless days.

Table V. Accumulated Frequencies of Daily Rainfall Amounts, (in inches), 1916-1950

Llwydiarth Esgob

Daily Totals	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	All months
3.80										1			1
2.60									1	1			2
2.50									1	1			2
2.40									1	1			2
2.30									2	1			3
2.20									2	1	1		4
2.10									2	1	1		4
2.00							1		2	1	1		5
1.90							1	1	2	2	1		7
1.80						1	2	2	2	2	1		10
1.70					1	1	2	2	2	2	2		12
1.60					1	1	2	3	3	2	2		14
1.50		1			1	1	2	4	7	3	3		22
1.40	1	2		1	3	1	2	4	7	7	4		32
1.30	2	2	1	1	3	2	2	7	7	7	5	1	40
1.20	2	2	2	1	4	3	5	9	10	9	6	3	56
1.10	3	3	3	1	6	6	6	10	13	10	7	3	71
1.00	7	5	6	1	8	7	7	13	17	16	10	6	103
0.90	13	6	6	3	12	9	8	19	18	23	18	11	146
0.80	20	10	8	3	13	11	15	21	23	22	24	21	202
0.70	29	17	10	6	23	16	20	26	33	46	31	32	289
0.60	41	28	16	10	37	26	27	33	41	66	46	47	411
0.50	70	45	26	26	50	45	46	59	69	93	82	74	685
0.40	114	67	48	44	66	61	68	97	103	130	125	114	1037
0.30	171	105	92	73	101	90	115	144	142	175	176	176	1560
0.20	279	174	167	126	161	141	170	214	220	278	275	289	2494
0.10	451	295	286	276	265	245	310	317	361	419	434	438	4088
0.005	760	577	529	540	494	460	545	563	589	684	711	749	7201
*0.004	325	412	556	510	591	590	540	522	461	401	339	336	5583
Total No of days	1085	989	1085	1050	1085	1050	1085	1085	1050	1085	1050	1085	12784

* Including rainless days

Table VI. Maximum and Minimum Monthly and Annual Totals of Rainfall, (in inches), 1916-50, with supplementary list covering extremes (1911-1960)

		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year
Blaenau Festiniog		1928	1935	1919	1920	1920	1928	1920	1927	1918	1917	1928	1919	1928
	Max	23.63	18.31	15.25	12.41	14.07	20.77	18.14	22.00	25.22	20.19	23.00	18.94	146.56
1916-50		1917	1932	1931	1938	1938	1925	1935	1947	1941	1947	1945	1927	1937
	Min	5.37	0.28	1.79	1.18	1.55	0.11	3.14	0.79	1.76	1.55	1.14	2.50	82.35
Other Extremes													1951	
	Max												22.91	
1911-60		1953						1952		1959				
	Min	5.20						3.09		1.43				
Llandudno		1948	1925	1919	1920	1924	1928	1920	1927	1918	1935	1944	1929	1920
	Max	5.80	5.45	5.75	3.28	4.36	3.93	5.33	6.83	6.95	5.64	5.95	5.96	38.28
1916-50		1917	1932	1929	1938	1922	1925	1935	1947	1949	1922	1945	1926	1933
	Min	0.96	0.14	0.17	0.28	0.28	0.08	0.33	0.38	0.56	0.32	0.30	0.96	21.12
Other Extremes					1959				1956			1960		
	Max				3.35				8.07			6.35		
1911-60		1911												
	Min	0.70												
Llwydiarth Esgob		1939	1925	1947	1920 & 1947	1924	1928	1920	1917	1950	1917	1929	1934	1920
	Max	8.05	5.82	6.03	4.28	5.70	5.54	7.53	9.79	8.96	7.99	9.02	9.00	48.22
1916-50		1935	1932	1944	1938	1950	1925	1934	1947	1939	1947	1945	1926	1933
	Min	2.06	0.20	0.70	0.36	0.74	0.03	0.40	0.58	1.14	0.40	0.35	1.23	29.12
Other Extremed			1958											
	Max		5.91											
1911-60		1911							1959	1959				
	Min	1.77							0.38	0.79				

Table VII. Maximum Daily Rainfall, (in inches), 1916-50, with additional maxima for the 50-year period, 1911-60

		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Blaenau Festininog	(	1944	1928	1919	1923	1920	1928	1928	1927	1918	1938	1923	1919
1916-50	(Max	4.49	4.75	3.12	3.82	4.84	7.75	5.12	6.00	4.52	5.10	5.57	4.34
Other Extremes	(			1952							1912		1959
1911-60	(Max			3.38							4.45		4.91
Llandudno	(	1947	1950	1919	1931	1924	1938	1926	1931	1931	1935	1923	1922
1916-50	(Max	1.57	1.22	1.54	1.32	1.39	1.46	1.34	1.72	1.98	1.74	1.27	1.22
Other Extremes	(		1958					1912	1956			1954	
1911-60	(Max		1.26					1.58	1.91			1.43	
Llwydiarth Esgob	(	1939	1940	1947	1947	1924	1937	1920	1917	1918	1937	1923	1918
1916-50	(Max	1.40	1.50	1.30	1.48	1.76	1.86	2.01	1.98	2.66	3.80	2.20	1.31
Other Extremes	(												
1911-60	(Max												

Appendix I

Intense falls in 2 hours or less, 1860-1960
Extracted from British Rainfall

(Arranged chronologically, in county order).

Key at end

Year	Class	Station	Riv Div	Date	Amt in	D'r'n min	Rate in/hr
Cardigan		no entries					
Montgomery		" "					
Merioneth		" "					
1914	R	Bala, National School	1	July 11	1.91	95	1.21
1940	N	Corwen, Bryntirion	1	" 15	1.25	44	1.71
1940	N	" "	1	Sept 7	1.01	55	1.10
1941	N	Tan-y-Bwlch, Plas Gdns	3	July 12	1.80	120	.90
1957	N	Harlech Hendre	3	Aug 8	.82	30	1.64
Caernarvon							
1881	R	Llandudno, Warwick Ho	2	May 26	1.18	25	2.83
1935	N	Bangor, The Cottage	3	June 23	1.20	38	1.90
1935	R	" " "	3	" "	1.75	77	1.36
1950	N	Snowdon, Cwm Dyli	5	Sept 24	1.38	120	.69
1956	N	" " "	5	" 22	1.27	102	.75
Anglesey							
1935	N	Pen-y-parc	-	June 23	.98	40	1.47
Denbigh							
1894	N	Rosset, Trevalon Hall	1	June 21	1.00	25	2.40
1895	R	Gresford, Trewythen	1	" 26	1.73	45	2.31
1908	N	Nantyglyn, Pant-y-maen	1	July 5	1.32	90	.88
1925	N	Llangynhafal, Plas Draw	2	" 15	1.33	60	1.33
1934	V.R	Wrexham, WW Office	1	" 13	2.75	60	2.75
1934	V.R	Bettws-y-Coed, Rhydycrens	3	" 12	3.18	120	1.59
1947	N	Llangynhafal, Plas Draw	2	June 28	.96	30	1.92
1947	N	Wrexham, Grove Park Sch	1	July 19	1.52	120	.76
1951	N	Abergele, Sea Road	2	Aug 6	1.33	75	1.06
1952	N	Wrexham, Grove Park Sch	1	July 1	1.56	120	.78
1957	N	Denbigh, Mental Hosp	2	" 3	1.18	90	.79
Flint							
1867	R	Mold, Bryn Aly	1	July 18	1.00	15	4.00
1920	N	Bodfari, Cae Gwyn	2	" 2	1.31	120	.65
1931	N	Sealand, Airfield	1	June 14	1.00	58	1.03
1943	N	Bodfari, Nantlys	2	July 31	1.19	60	1.19
1945	R	Sealand, Airfield	1	" 15	1.53	60	1.53
1951	N	Harwarden Airfield	1	Aug 6	.80	24	2.00
1957	R	Rhyl, Dyserth Road	2	July 6	1.46	45	1.95
1957	N	Rhyl, Westbourne Ave	2	" 6	.75	10	4.50
1958	R	Bodfari, Nantlys	2	June 24	1.25	45	2.24
Cheshire							
1872	N	Chester, Newton Nurseries	4	June 17	.95	35	1.63
1972	N	" " "	4	July 7	1.30	60	1.30
1872	N	" " "	4	" 10	1.20	90	.80
1924	N	W Kirby, St Andrews Vic	4	May 31	1.23	75	.98
1924	N	" " " " "	4	Aug 23	1.61	120	.81
1926	R	" " " " "	4	Sept 20	1.44	45	1.92

Year	Class	Station	Riv Div	Date	Amt in	D'r'n min	Rate in/hr
Cheshire (cont'd)							
1926	R	W. Kirby, St Andrews Vic	4	July 18	1.55	50	1.86
1943	N	W Kirby, St Andrews Vic	4	July 31	1.28	90	.85
1945	N	" " " " "	4	July 16	.55	10	3.30
1945	N	" " " " "	4	July 15	.93	15	3.72
1945	V.R	Neston, Vine Ho	4	July 15	1.65	20	4.95

Key. N = Noteworthy

R = Remarkable

VR = Very Rare

Countries and River Divisions:-

Cardigan	1	Dovey (no entries)
Montgomery	1	Dovey (no entries)
Merioneth	1	Dee
	2	Clwyd
	3	Glaslyn
	4	Mawddach
Anglesey	-	
Carnarvon	1	Bardsey Is
	2	Conway
	3	Menai Straits
	4	Erch & C
	5	Glaslyn
Flint	1	Dee
	2	Clwyd
Salop	2	Dee (no entries)
Cheshire	4	Dee
Denbigh	1	Dee
	2	Clwyd & C
	3	Conway

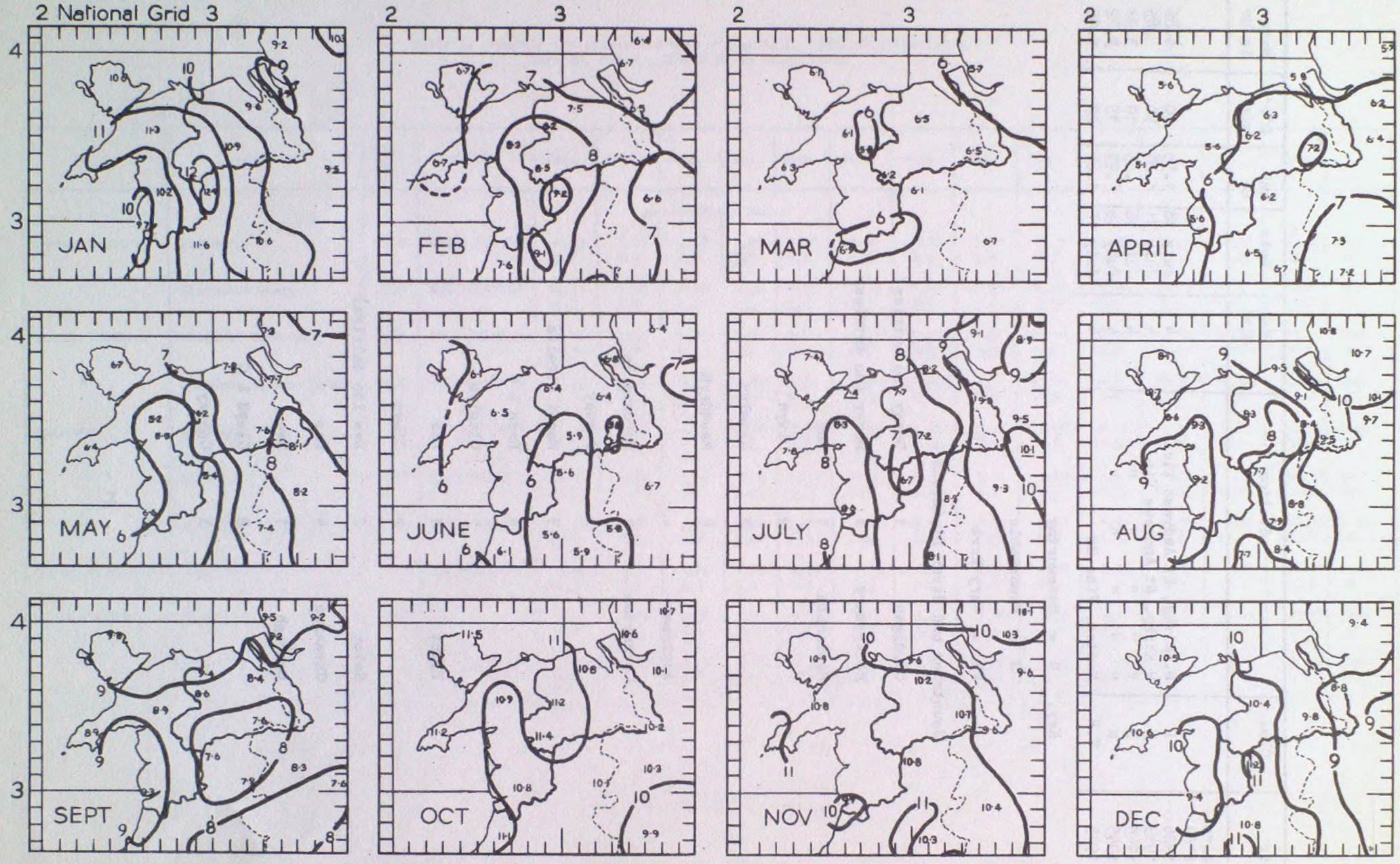

Fig 1 Average Monthly Rainfall as a percentage of Average Annual Rainfall 1916—50

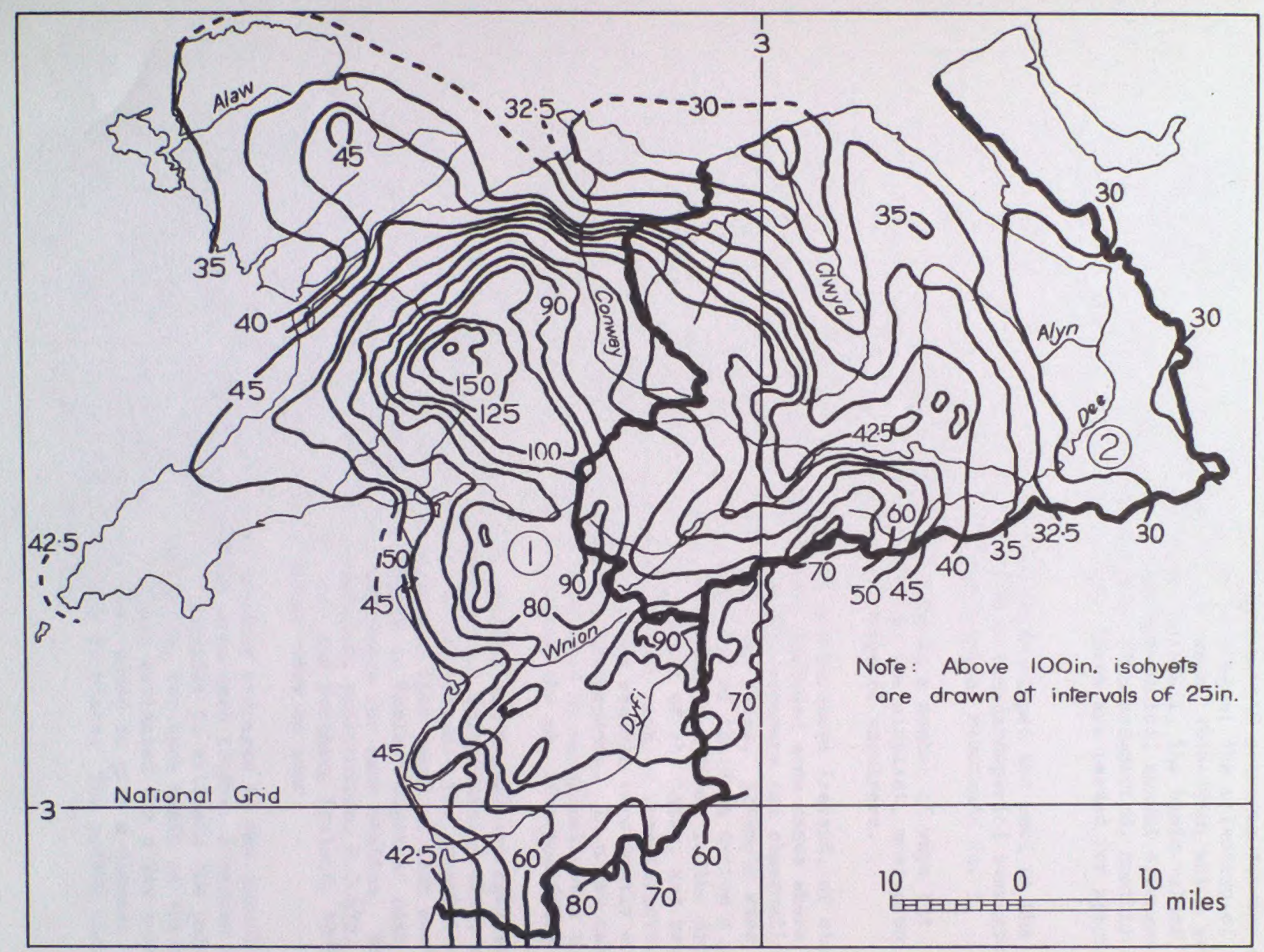

Fig 2 Average Annual Rainfall 1916—50, (in inches) over the River Board areas of

① North Wales (Gwynedd) ② Dee and Clwyd